Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A computer-implemented method of improving performance in a Java computer application program executable by a Java virtual machine (JVM), comprising the steps of:

obtaining information associated with garbage collection; and

deducing changes in performance that will result from modifying the Java computer application program;

wherein a cost of garbage collection to program performance of a modified version of the Java computer application program is estimated by the computer-implemented method using a duration of an average garbage collection event and a frequency of occurrence of particular garbage collection events, wherein the duration depends on an amount of garbage that must be cleaned up, an algorithm used to do collecting or copying, a heap compaction, a cost of reconciling object references that are moved, and a number of finalizers that must be executed, and wherein the frequency depends on a rate of object creation, heap fragmentation, size of the heap, and a garbage collection policy;

wherein the Java computer application program is changed by reducing memory from a footprint of the Java computer application program, wherein given an amount of memory to be reduced from the footprint (m), a total duration for a run (d), and how much of the run is spent in garbage collection (g), a number of additional transactions that can be computed during the run is determined according to:

$$y = function\ (m, t, g, d, f),\ where$$

t is current computed throughput of the Java computer application program in transactions/second, f is average memory footprint of the Java computer application program during duration d, and y is the number of additional transactions gained after reducing the memory footprint of the Java computer application program to ($f - m$) during the total duration d.

2-7.   (Cancelled)

8.   (Currently Amended) The method of claim [[7]] 1, wherein the information associated with garbage collection is obtained from a verbosegc.

9.   (Cancelled)

10.   (Currently Amended) A computer system capable of running a Java application program by a Java virtual machine (JVM), comprising:

        a garbage heap associated with garbage collection events, wherein garbage collection events have an average duration and frequency; and

        instructions for estimating changes in performance resulting from modification of the Java application program using information obtained about the garbage collection events;

        wherein a cost of garbage collection to program performance of a modified version of the Java application program is estimated by the computer system using a duration of an average garbage collection event and a frequency of occurrence of particular garbage collection events, wherein the duration depends on an amount of garbage that must be cleaned up, an algorithm used to do collecting or copying, a heap compaction, a cost of reconciling object references that are moved, and a number of finalizers that must be executed, and wherein the frequency depends on a rate of object creation, heap fragmentation, size of the heap, and a garbage collection policy;

        wherein the Java application program is changed by deducting memory from a footprint of the Java application program, wherein given an amount of memory to be deducted from the footprint *(m)*, a total duration for a run *(d)*, and how much of the run is spent in garbage collection *(g)*, a number of additional transactions that can be computed during the run is determined according to:

        $y = \text{function } (m, t, g, d, f)$, where

t is current computed throughput of the Java computer application program in transactions/second,

f is average memory footprint of the Java computer application program during duration *d*, and

y is the number of additional transactions gained after reducing the memory footprint of the Java computer application program to *(f − m)* during the total duration *d*.

11-15. (Cancelled)

16.   (Currently Amended) The method of claim [[15]] 10, wherein the information associated with garbage collection is obtained from a verbosegc.

17.   (Currently Amended) A computer program product in a computer readable medium for improving performance in a Java computer application program executable by a Java virtual machine (JVM), comprising:

first instructions for obtaining information associated with garbage collection; and

second instructions for deducing changes in performance that will result from modifying the Java computer application program, wherein a cost of garbage collection to program performance of the Java computer application program is estimated by the computer program product using a duration of an average garbage collection event and a frequency of occurrence of particular garbage collection events, wherein the duration depends on an amount of garbage that must be cleaned up, an algorithm used to do collecting or copying, a heap compaction, a cost of reconciling object references that are moved, and a number of finalizers that must be executed, and wherein the frequency depends on a rate of object creation, heap fragmentation, size of the heap, and a garbage collection policy;

wherein the Java computer program is changed by deducting memory from a footprint of the Java computer application program, wherein given an amount of memory to be deducted from the footprint (m), a total duration for a run (d), and how much of the run is spent in garbage collection (g), a number of additional transactions that can be computed during the run is determined according to:

$$y = function\ (m,\ t,\ g,\ d,\ f),\ where$$

t is current computed throughput of the Java computer application program in transactions/second,
f is average memory footprint of the Java computer application program during duration d, and
y is the number of additional transactions gained after reducing the memory footprint of the Java computer application program to ($f - m$) during the total duration d.

18-22.   (Cancelled)

23.   (Currently Amended) The method of claim [[22]] 17, wherein the information associated with garbage collection is obtained from a verbosegc.